

AMENDMENT UNDER 37 C.F.R. § 1.111
APPLICATION NO. 09/754,394
ATTORNEY DOCKET NO. Q62564

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

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1. (Currently amended): A lens moving mechanism for controlling and monitoring movement of an imaging lens, said moving mechanism comprising:
- (a) a detection part for detecting a plurality of reflectivities;
 - (b) a state indication part having arranged in order thereof first, second and third areas, said first area, including a first reflecting part and a third reflecting part, each repeatedly provided for indicating a first state to said detection part, said second area, including said first reflecting part and a second reflecting part, each repeatedly provided for indicating a second state to said detection part, and said third area, including said second reflecting part and said third reflecting part, each repeatedly provided for indicating the first state to said detection part;
 - (c) a drive part for moving said detection part, relative to said state indication part, in a direction thereof; and
 - (d) an identification part for identifying a position of the lens based upon a change of reflectivity along a sequence of indication of said first ~~state area~~ and said second ~~state area~~ by said state indication part to and said third area of said state indication part detected by said detection part.

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2. (Currently amended): ~~A~~The lens moving mechanism according to claim 1, further comprising a count part for determining a count based upon said movement by said drive part;

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said identification part identifying said position of the lens based upon one or more of said sequence of indication, said count by said count part, and said direction of movement by said drive part.

3. (Currently amended): ~~A~~The lens moving mechanism according to claim 1, wherein:
said drive part moves said detection part, relative to said state indication part, from said first area in a direction toward said third area when said state indication part indicates the first state to said detection part; and

upon movement of said detection part to a position of predetermined distance, said identification part identifies that (a) said detection part detected the first area before moving said predetermined distance when said detection part detects the second state and (b) said detection part detected the third area before moving said predetermined distance when said detection part does not detect the second state.

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4. (Currently amended): A moving mechanism, comprising:

(a) a detection part for detecting one of a first state and a second state;

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(b) a state indication part having, arranged in order thereof, a first area, including a first reflecting part and a third reflecting part, each repeatedly provided for indicating the first state to said detection part, a second area, including said first reflecting part and a second reflecting part, each repeatedly provided for indicating the second state to said detection part, and a third area, including said second reflecting part and said third reflecting part, each repeatedly provided for indicating the first state to said detection part; and

(c) a drive part for moving said detection part in a relative manner to said state indication part,

wherein an area of movement in which said detection part moves in a normal usage state includes the first area, the second area, and a portion of the third area; a movable area, in which said detection part is movable but does not move in said normal usage state, is provided outside said portion of the third area included in said movement area; and the width of the movable area is more than the width of the first area.

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5. (Currently amended): ~~A~~The moving mechanism according to claim 4, further comprising:

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an identification part for identifying an area to be detected;

when said state indication part indicates the first state to said detection part said drive part moves said detection part, relative to said state indication part, in a direction of the third area from the first area, and

upon movement of said detection part to a position of predetermined distance, said identification part identifies that (a) said detection part detected the first area before moving the predetermined distance when said detection part detects the second state and (b) said detection part detected the third area before moving the predetermined distance when said detection part does not detect the second state.

6. (Currently amended): ~~A~~The moving mechanism according to claim 5, wherein ~~said state indication part includes:~~

said first, second, and third reflecting parts ~~having each have corresponding~~ two or more different reflecting ratios arranged repeatedly in a direction said detection part moves; ~~and~~

said state indication part includes a count part for counting a number of times the two or more different reflecting ratios repeat when said detection part moves; and

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wherein said identification part recognizes the predetermined distance using the number counted by said count part.

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7. (Currently amended): A lens mirror body with a moving mechanism for moving a lens part in a first, second, and third areas, comprising:

- (a) a drive part for moving said lens; and
- (b) a state indication part having, arranged in order thereof, a first area, including a first reflecting part and a third reflecting part, each repeatedly provided for indicating a first state, a second area, including said first reflecting part and a second reflecting part, each repeatedly provided for indicating a second state, and a third area, including said second reflecting part and said third reflecting part, each repeatedly provided for indicating the first state, said state indication part indicating the first state when said lens part is positioned in the first and third areas and indicating the second state when said lens part is positioned in the second area,

wherein an area of movement of said lens part during a normal usage state includes the first area, the second area, and a portion of the third area; a movable area where said lens part is movable but said lens part does not move while photographing is provided in the third area; and the width of the movable area is more than the width of the first area.

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8. (Currently amended): In combination, an image device and a movable lens part, comprising:

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- (a) a detection part for detecting ~~one of a first state and a second state~~ a plurality of reflectivities;
 - (b) a state indication part, having arranged in order thereof, a first area, including a first reflecting part and a third reflecting part, each repeatedly provided for indicating the first state to the detection part, a second area, including said first reflecting part and a second reflecting part, each repeatedly provided for indicating the second state to the detection part, and a third area, including said second reflecting part and said third reflecting part, each repeatedly provided for indicating the first state to the detection part; and
 - (c) a drive part for moving said detection part, relative to said state indication part, in two or more areas among the first, second, and third areas and driving said lens part therewith.

9. (Currently amended): ~~A-~~The combination according to claim 8, further comprising:

an identification part for recognizing a moving direction between a movement in a direction of the third area from the first area and a reverse direction thereto, when the state changes from the second state to the first state, and for identifying an area which said detection part detects based on a result of said recognition.

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10. (Currently amended): ~~A-~~The combination according to claim 9, wherein said drive part moves said detection part, relative to said state indication part, in a direction of the third area from the first area, when said state indication part indicates the first state to said detection part, and

when said detection part has moved to a position of predetermined distance, said identification part identifies that (a) said detection part detected the first area before moving the predetermined distance when said detection part detects the second state and (b) said detection part detected the third area before moving the predetermined distance when said detection part does not detect the second state.

11. (Currently amended): ~~A-~~The combination according to claim 10, wherein ~~said state indication part includes:~~

said first, second, and third reflecting parts ~~having each have corresponding~~ two or more different reflecting ratios arranged repeatedly in a direction said detection part moves;

said state indication part includes a count part for counting a number of times the two or more different reflecting ratios repeat when said detection part moves; and

said identification part recognizes the predetermined distance using the number counted by said count part.

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12. (Currently amended): A-The combination according to claim 11, further comprising:
a reference value setting part for setting, in advance, a reference value in said count part
at the time said detection part moves and said detection part changes from the first state to the
second state and from the second state to the first state; and
for setting the reference value as a number counted by said count part when a state which
said detection part detects changes.

13. (Currently amended): A-The combination according to claim 12, wherein
said detection part returns to a position in which the state changes at a lower speed than a
moving speed towards the predetermined distance if said detection part changes from the first
state to the second state and from the second state to the first state when said lens part moves in a
predetermined direction, and
said count part starts to count at the time said detection part returns to the position in
which the state changes.

14. (Currently amended): A-The combination according to claim 8, wherein an area of
movement of said lens part in a normal usage state includes the first area, the second area, and a
portion of the third area; a movable area where said lens part is capable of moving but said lens

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part does not move while photographing is provided in the third area; and a width of the movable area is more than a width of the first area.

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15. (Currently amended): A-The combination according to claim 8, wherein a withdrawn position of said lens part is located at one of a boundary position between the first area and the second area and a vicinity thereof, and

a photographing preparation position of said lens part in preparation for photographing is located at one of a boundary position between the second area and the third area and a vicinity thereof.

16. (Currently amended): An image device having a movable lens part, comprising:
a detection part for detecting ~~one of a first state and a second state~~ a plurality of
reflectivities;
a state indication part, having arranged in order thereof, a first area, including a first
reflecting part and a third reflecting part, each repeatedly provided for indicating the first state to
the detection part, a second area, including said first reflecting part and a second reflecting part,
each repeatedly provided for indicating the second state to the detection part, and a third area,
including said second reflecting part and said third reflecting part, each repeatedly provided for
indicating the first state to the detection part; and

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a drive part for moving said detection part, relative to said state indication part, between the first area and the third area and driving said lens part therewith.

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17. (Currently amended): A position detection method for detecting a position of a movable lens part in a lens mirror body, comprising the steps of:

(a) moving the lens part in two or more areas among a first area, including a first reflecting part and a third reflecting part, each repeatedly provided for indicating a first state, a second area, including a first reflecting part and a second reflecting part, each repeatedly provided for indicating a second state, and a third area, including a second reflecting part and a third reflecting part, each repeatedly provided for indicating the first state;

(b) detecting the first state and the second state during said moving step; and
when the second state is changed to the first state in said detecting step:)

(c) recognizing a moving direction of said lens between a direction towards the third area from the first area and a reverse direction thereto; and

(d) identifying an area detected prior to said moving step based on a result of said recognizing step.